

# Soldiers

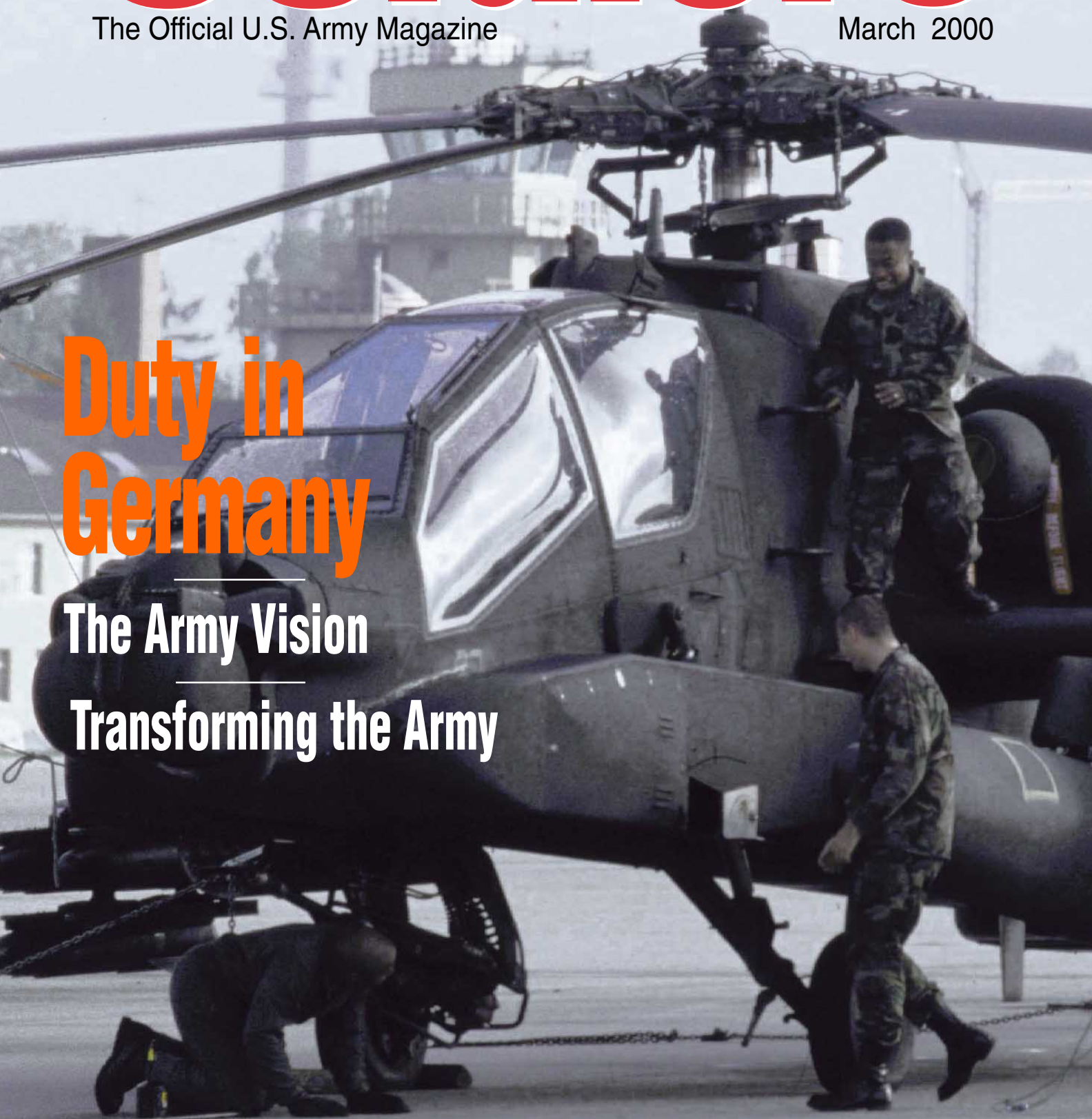
The Official U.S. Army Magazine

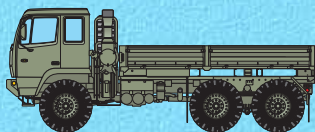
March 2000

**Duty in  
Germany**

**The Army Vision**

**Transforming the Army**





# Improving the FMTV

Story and Photos by Heike Hasenauer

**I**N the Army, the support that keeps the front-line troops in the action often remains anonymous.

Like the set designers, special effects artists and writers who create magic on-screen, the Army's workhorses — its trucks — seldom share the spotlight with the stars, the combat vehicles.

Yet every combat vehicle — whether a Bradley fighting vehicle, M1 tank or AH-64 Apache attack helicopter — requires a host of trucks to keep it ready for action. Trucks haul the fuel, ammunition, food, supplies and spare parts. And, of course, the troops.

The soldiers who operate and maintain these trucks aren't easily sold on systems that outside experts tell them are going to be new and better.

"Of all the programs I run, this is the most important for the Army, because the Army runs on trucks," MG John Michitsch, the Army's program executive officer for Ground Combat Support Systems, told assembly line workers at the Stewart and Stevenson production facility in Sealy, Texas, where the latest A1 models of the Family of Medium Tactical Vehicles — the Army's newest trucks — were rolling off the line in December.

At 23 assembly points, 104 workers assembled heavy metal parts, starting with the chassis, followed by engines, transmissions, intricate electronics

systems, wires and cables.

Parts lay deep in pools of zinc and chrome, part of the "E-Coat" electrostatic corrosion-control coating that prepares the surface so the



**A newly completed FMTV A1 rolls off the Stewart and Stevenson assembly line in Sealy, Texas.**



**Soldiers**

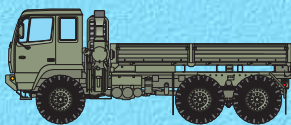


all

A recently completed A1 truck climbs a 60-degree incline during a pre-delivery test at the contractor's plant.







## Improving the FMTV

E-Coat has something to bond to, said Dennis Rawson, an assembly, inspection and test manager at the Sealy plant and a retired Army warrant officer.

The parts enter 13 tanks before they're placed in a 390-degree oven for three-and-a-half hours, where the E-Coat is baked on.

The process increases the likelihood that the vehicles will reach the 20-year mark without rust, said Rawson.

Elsewhere in the plant, Tom Varney built axles, then heaved them onto large hooks that carried them up the line to the next station. Another worker ran air hoses for the A1's airbrakes and automatic tire-inflation systems.

Olive drab truck cabs were lined up on what looked like a railroad track, awaiting instrument panels, seats, floor mats, windshields, stowage containers, lights and a host of other components.

Paint-by-number-type stencils would later be used to spray paint on camouflage patterns.

"The old 5-ton trucks were built on a moving flat-top conveyor," said Stewart and Stevenson's Mike Hauser, general manager of the Tactical Vehicle Systems Division. "Our assembly line doesn't move until operations are complete at each

stage. Quality auditors roam the assembly line.

"We build the engine, radiator and cargo body on separate lines. And we build the vehicles from the inside out, so that the cab, tires, fluids, exhaust and intake systems are completed last," Hauser said.

High above the final stop on the line, the roll-out station, a banner read "571" — the number of A1s completed as of Dec. 13. About 10 of the trucks roll off the assembly line daily, Rawson said. Each requires about two days to complete. And each elicits a deep sense of pride among the assembly line crews, said Stewart and Stevenson spokesman Paul Justice.

"Before they're rolled out, their transmission cycles are thoroughly tested, and quality-assurance personnel ensure all the vehicles' axles are functioning correctly, Rawson said. Then they're sent to the test track for a 12-mile run.

"Twenty-five completed vehicles go to a holding lot, where government representatives pull a random sampling of three to five to run them on the 12-

mile track yet again," Hauser said.

Vehicles coming off the assembly line have an average of five defects out of a possible 10,000, Hauser said. The number is based on the approximate number of operations performed times the approximate number of parts, which is 3,000.

"They have an average of seven defects when driven on the test track," he continued. Those can be anything from oil residue to paint deficiencies. But before the A1s are shipped to the Army, every defect will be corrected.

Outside the plant, test drivers take finished

trucks for a spin around a one-mile, high-speed test track with 30 degree side slopes, pushing them to ensure their stability.

Test-drive supervisor Tim Bradfield runs the trucks over simulated rough terrain — jagged, triangular concrete slabs and V-shaped rail tracks. And he takes 5-ton trucks, fully loaded with 10,000 pounds of gear, up and down a 41-foot hill with 60, 30 and 22 degree grades, killing the engine midway up to check for



**A worker positions frame rails that align the FMTV A1's chassis, the first step in the vehicle assembly process.**





brake and tire slippage.

Before that, the trucks undergo a battery of tests, some of them at the Army's test center at Aberdeen Proving Ground, Md. "The FMTV is "the most thoroughly tested tactical vehicle on the market today," Hauser said.

"Collectively, the trucks underwent almost one million miles of testing on the Army's most punishing test tracks, and airlifts by helicopters traveling at 100 knots, to prove their performance, ruggedness and durability," Hauser said.

Certain airdrop-capable models of the FMTV were loaded aboard C-130 transport aircraft within 10 minutes and built back up after hitting the ground, Hauser said. The FMTV's windows and windshield fold down, and some portions of the truck are disassembled.

Additionally, the vehicles were tied down on rail cars and subjected to "dead-head" testing, that is, a blockage was placed in front of the railcar carrying the FMTVs and another railcar was rammed into the obstacle to see how the FMTVs respond to impact.

In field usage of the vehicles, some were shipped to Egypt for exercise Bright Star, and they performed in Bosnia and were involved in hurricane relief efforts in Nicaragua, Hauser said.

Army acquisition executive Paul Hoeper gave Stewart and Stevenson the go-ahead last September to manufacture the A1 version of the trucks. The A1 incorporates a more powerful diesel engine, improved transmission and anti-lock brake system. It also has



**TACOM's SPC Jeremy Barbee tests the Interactive Electronic Technical Manual, a computerized maintenance system that's part of the new FMTV A1 vehicles.**

added anticorrosive protection, computerized engine diagnostics and some 40 upgrades resulting from recommendations from soldiers in the field [see related story].

The A1s will have more steel, to reinforce areas that proved to be weak against the strains of loaded-down combat forces. Other fixes include re-engineered galvanized-steel windshield frames; reinforced bumper brackets; stronger, thicker door hinges; windshield wipers with eight pressure points instead of four; a brush guard at the vehicle's front to protect the hydraulic cables when the vehicle goes through heavy brush; and improvements to the automatic tire inflation system.

Nearly 8,000 A1 models are to be produced by 2002, said the PEO's FMTV project manager, COL Robert Lees, at the U.S. Tank-automotive and Armaments Command in Warren, Mich.

First fielding is expected to begin during the third-quarter of 2000, and

soldiers from the 11th Signal Brigade at Fort Huachuca, Ariz., are expected to be the first to receive them, Lees said.

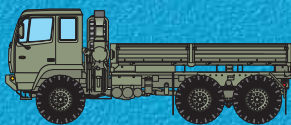
"As much as we'd like to say we understand the soldier and his vehicle, we don't," Hauser admitted. "Initially, we had a lot of problems with the first FMTVs. For example, soldiers put 500 pounds of gear up on the roof tarps. We didn't know the roofs would be used for that.

"We've sent our people out to the field to talk to soldiers so they could communicate their problems," Hauser said. "I've had soldiers write e-mails to me. They have a lot of questions. And there have been some accolades. And we've invited soldiers out here to tell us face to face what we can do to help them."

Immediately before a unit receives the FMTVs, Stewart and Stevenson sets up an orientation, and it trains mechanics at the unit and depot level, Hauser said. "Mechanics may perceive they'll have difficulties with the new







## Improving the FMTV



**Fitting truck cabs with consoles and other components is one of the final assembly steps.**

A1 version because of its hydraulics and electronics. But the new Integrated Electronic Technical Manual will tell them what to repair.

"And every major Army installation has a field service person who can answer questions and troubleshoot anything that mechanics at the unit and depot level can't," Hauser said.

In December, TACOM automotive maintenance technician CW3 Rod Rowley and two soldiers from TACOM's Maintenance and Procedures shop were at the Sealy plant to validate the integrity of the CD-ROM-based IETM.

The maintenance demonstration is part of the Army's procurement process, Rowley said. "Soldiers who will maintain the A1 model using the IETM go through a selective list of procedures to see if they can maintain the vehicle without contractor intervention."

"We're proud of the fact that our improved vehicle has proven operational more than 98 percent of the time," Hauser said. "It says our field-service people are working closely with soldiers, and parts are getting to the field quickly. Bottom line is, comparing the old Army truck to the FMTV is like comparing a Model T to a BMW. There is no comparison." □

## Soldiers and the FMTV: Working

Story and Photos by Heike Hasenauer

**M**ORE than 7,600 original-model Family of Medium Tactical Vehicle trucks, known as the A0 models, have been delivered to units Armywide since January 1996 as part of a \$1.4 billion, five-year contract with the Stewart and Stevenson Company of Houston, Texas.

The A0 trucks began replacing the Army's aging, 30-year-old fleet of 2.5-ton and 5-ton trucks, whose parts were becoming obsolete, said CW5 Buster Simmons Jr., chief of U.S. Army Special Operations Command's Materiel Maintenance Center at Fort Bragg, N.C.

"Parts were no longer being manufactured," he said, "so mainte-



**A contractor employee at Fort Bragg's Materiel Management Center works on the driveshaft of an FMTV.**